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Volatility of Short-Term Capital Flows and Socio-Political Instability in Argentina, Mexico and Turkey

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Abstract

The paper analyzes the relationship between financial liberalization and socio-political risk by identifying the inter-dependent nature of socio-political and economic fault lines in three developing countries. Unlike the previous research, the current article suggests that domestic socio-political factors cannot be isolated from the fluctuations taking place in the economic arena. In particular, we examine the effects of short-term capital inflows on the recipient countries by exploring the dynamic relationship between the volatility of such flows and socio-political instability. Accordingly, we endogenize the volatility of short term capital inflows with political risk variables where increasing volatility by disrupting market activities and private investment increases socio-political risk, which further feeds into the volatility of such flows. In the empirical analysis using both the Granger causality tests and a simultaneous-equation approach we uncover a contemporaneous relationship between the volatility of short-term capital inflows and socio-political instability. The results also challenge the previous research regarding their use of political variables as purely exogenous from economic variables. Likewise, the legitimacy of the arguments explaining investor cautiousness vis-à-vis political developments in the developing countries with purely domestic factors also becomes questionable.

Keywords: Capital Account Liberalization, Volatility of Short Term Capital Flows, Socio-Political Instability, Macroeconomic Uncertainty

1. Introduction

The return of international capital flows in the early 1990s was welcomed with mostly optimistic applauses in the crises ridden countries of the developing world. The revival of international capital flows combined with domestic far-reaching economic (and in some, political) reform programs seemed to generate a strong shift of mood in both developed and developing country markets regarding the long term outlook of the world economy. In this respect, recovery of capital inflows and accompanying reform programs were expected to release foreign exchange and credit bottlenecks, decrease domestic and international interest rate differentials, generate financial sector deepening and capital market development, minimize moral hazard problems and rent seeking behavior in the public and private spheres and finally support long-term growth prospects of these economies.

After more than a decade of liberalization experience, however, some serious questions remain over the capacity of capital flows in generating the initial policy projections. In addition to unmet expectations, there is a growing controversy in the literature over the direct role of such flows in generating or at least in setting the stage for the consecutive financial crises in the developing countries during the course of 1990s and early 2000s.

However, despite a growing research on the causes and effects of international capital flows very little is written on their volatility. The discussion so far has concentrated on the so-called pull/push literature of international capital flows and their impacts on the domestic macro variables. Apart from a few studies, there is no comprehensive analysis of the volatility of these flows and its interdependent relationship with the domestic variables.

In this respect, one of the issues that has been neglected in the current literature is the effects of the volatility of these flows on socio-political instability (political risk and socio-political instability will be used interchangeably from here on) in the developing countries. Given the interdependent nature of international capital flows, country risk, growth and private investment in developing countries, the main question asked in this article is whether the effects of international capital flows are limited to only the economic arena or spill over to the non-economic as well.

In the current article, we suggest that uncontrolled domestic and external financial liberalization give rise to an endogenously determined cycle among socio-political risk, international capital flows, and growth in the developing countries. Accordingly, we endogenize the volatility of short term capital flows with political risk variables where increasing volatility by disrupting market activities and private investment increases political risk, which further feeds into volatility of such flows.

Given the lack of in-depth analysis of developing country experiences, the paper focused on three countries; Argentina, Mexico, and Turkey (AMT from here onwards), which appear as a trio where financial liberalization reforms were first started (together with Chile) and the experiences of which have formed the theoretical (and sometimes ideological) basis of the arguments (either for or against) on globalization and liberalization of markets in the developing world.

The next section presents an overview of the existing research on the relationship between economic variables and socio political risk in two sub-sections: a) effects of socio-political risk on international capital flows, domestic investment and growth, b) effects of the direction and the volatility of international capital flows on domestic macroeconomic environment and private investment. The third section provides a discussion of the previous research and identifies the endogenous relationship between the volatility of short-term capital flows and socio-political instability together with the presentation of key hypothesis of interest. The fourth section introduces the data and measurement issues. The fifth section presents the empirical results. The final section provides an overall discussion of the findings and concludes the paper.

2. Economics and Socio-Political Risk

2.1 International Capital Flows, Investment, Growth and Political Risk

The relationship between domestic and international investment decisions and socio-political instability has been one of the attractive topics for researchers especially following the globalization of domestic markets for the last two decades.

In this respect, the publications in international finance mostly focused on the effects of political instability on private investment decisions such as the global asset allocation of private investors. These

models spread over a wide range of fields from measurement of risk premiums in equity returns in international money markets to measuring country creditworthiness against the risk of default (e.g. Bailey and Chung, 1995; Bilson, Brailsford, and Hooper, 2002; Brewer and Rivoli, 1990; Erb, Harvey and Viskanta, 1995; Feder and Uy, 1985; Kobrin, 1978; Meldrum, 1999).

Diamonte, Live, and Stevens (1996) found that changes in political risk has a statistically and economically significant effect on stock market returns in the case of 24 developing countries while no such effect is found in the case of 21 developed country markets. Erb, Harvey and Viskanta (1995) confirmed these results and argued that country risk and political risk is significantly correlated with future equity returns and with stock market volatility in a group of 40-117 countries. In a parallel research, Bilson, Brailsford and Hooper (2002) in a sample of 17 emerging markets over the period of 1985-1997 and using monthly data showed that there exist a significant relation between political risk and the stock returns in the developing countries.

Likewise, it is further pointed out that political risk factors are at least as important as economic variables in explaining foreign lenders' risk perceptions and hence in explaining countries' creditworthiness (Brewer and Rivoli, 1990; Rivoli and Brewer, 1997). In addition, the countries experiencing higher levels of capital inflows are found to have lower levels of political risk than those with lower levels of capital inflows (Hernandez and Rudolf, 1994, Fedderke and Liu, 2002).

On the other hand, Alfaro, Kalemli-Ozcan and Volosovych (2004) directly takes into account the effects of political risk (which they interpret as institutional quality) on the volatility of international capital flows in a cross-section of 97 countries between 1970 and 2000. Their empirical results, however, fail to detect any significant effect of institutional quality on the volatility of net total capital inflows, equity and debt.¹ In contrast, in a similar work on the determinants of volatility of capital flows, Beck (2001) finds that rule of law has a statistically significant negative effect on the volatility of net capital flows in the case of 56 emerging markets over the period of 1990-1998.

Along a similar line of research several papers have examined the relationship between political instability and FDI and found that political risk and instability have a significantly negative impact on

FDI in the developing countries (Biswas, 2002; Kobrin, 1978; Root and Ahmed, 1979; Schneider and Frey, 1985; Nigh, 1985; Wei, 1997). Stevens (2000), on the other hand, finds no significant effect of political instability on FDI flows from US to three biggest LA economies (i.e. Brazil, Mexico and Argentina).

Likewise, in the growth literature political instability has been widely used in the empirical analysis.² The majority of research in this field finds a negative relationship between political risk and investment/growth variables. Alesina and Perotti (1996), Alesina et al. (1996), Asterio and Price (2000), Barro (1991), and Sala-i-Martin (1997) find an inverse relationship between political instability and growth or investment. Venieris and Gupta (1986) identify an inverse relationship between political instability and savings rate. In addition, Asteriou and Price (2001) found that socio-political instability not only negatively affects the growth rate but also does increase the volatility of it in the case of the UK.

In Political science, on the other hand, the attention has been concentrated on the interaction between various political and economic variables such as democratization and economic growth or poverty and coup traps (e.g. Gupta, Madhavan and Blee, 1998; Helliwell, 1994; Londregan and Poole, 1990).

Another widely debated issue with political instability is the income inequality and growth relationship. There are two opposite views on this issue. One is the classical view, which suggests that more inequality favors more accumulation, because the rich save more than the poor. The second view analyzes the effect of inequality on growth and investment through fiscal redistribution channels: Increasing social pressures because of growing income inequality diverts resources from investment to fiscal redistribution and hence generates an inverse relation between inequality and investment in physical capital (e.g. Alesina and Rodrik, 1994; Alesina and Perotti, 1996; Persson and Tabellini, 1994). These two effects go in opposite directions and in principle they may cancel out. Barro (1999) and Perotti (1996) provide support for this thesis in their analysis of inequality-growth relationship where they found no significant effect of inequality on growth. Alesina and Perotti (1996) in their model endogenized the political risk and investment through income inequality in a two-equation system where increasing

inequality increases the political risk, which then reduces investment. They pointed out that fiscal redistribution by increasing the tax burden on capitalists and investors reduces the propensity to invest. However, the same policies may reduce social tensions and create a social climate more conducive to productive activities and capital accumulation. Furthermore they find that income distribution does not have any additional effect on investment after controlling for political instability suggesting that income inequality hinders growth through its effect on political instability.

The central idea behind the above analyses is the following: socio-political unrest and instability disrupts market activities and investment decisions by increasing economic uncertainty and risk. Increasing violence, civil wars, political disorder and physical threats to workers and entrepreneurs can have direct effects on productivity and therefore on the rate of return on investment.³ Olson (1982, p.165), for example, argues that “instability diverts resources that would otherwise have gone into productive long term investments into forms of wealth that are more easily protected, or even into capital flight to more stable environments”.

Hence, increasing social discontent and political uncertainty is expected to harm growth and investment while at the same time discouraging foreign capital inflows and encouraging outflows.⁴

2.2 International Capital Flows and Volatility in Macroeconomic Variables

Political and other domestic sources of risk are not the only causes of uncertainty for domestic and international investors. In this respect, the effects of liberalization of financial markets on domestic macro variables has been one of the most attractive topics for researchers especially following the increasing integration of global markets for the last two decades.

Balkan and Yeldan (1998) established a direct link between stock market fluctuations and short-term capital flows in the Turkish economy. Similarly, Oks and Wijnbergen (1995) showed the rise of a stock market bubble in Mexico between 1989 and 1991 following the liberalization programs. Frenkel and Rozada (2000) found that GDP growth and investment level is directly correlated with the international financial conditions Argentine economy faced. According to their regression estimations, the relevant interest rate variance explained 40 per cent of the quarterly GDP growth rate variance. Their

results also showed that capital flows and interest rate fluctuations, which were determined by the changes in international financial conditions, had a significant explanatory power in explaining ups and downs in the activity level and investment in Argentina. In a similar research Calvo, Leiderman and Reinhart (1993) examined empirical evidence for 10 LA countries and concluded that foreign factors (i.e. interest rates, economic activity, real estate and stock market returns in the US) accounted for 30-60 per cent of the variance in real exchange rates and reserves depending on the country. Similarly, Berg and Taylor (2000), Fanelli and Frenkel (1999), Frenkel and Rozada (2000) and Ros and Lustig (2000) highlighted a direct link between short term capital flows and the appreciation of domestic currencies in Mexico and Argentina which led to a shift of relative prices against tradable good sectors.

Along a parallel path, Gabriele, Boratav and Parikh (2000), which analyzed the changes in instability and volatility of capital flows to developing countries between late 70s and 90s with three sub periods pointed out that “capital flows to developing countries are characterized by high, rising and unpredictable volatility” (p.1051).

On the other hand, when we look at the effects of uncertainty and volatility in key macro prices on investment and growth, the existing empirical evidence suggest a direct link. In the case of developed country experiences, Darby et al. (1998), in a sample of five OECD countries, found a negative effect from real exchange rate variability to investment. Likewise, Federer (1993) found a negative impact of uncertainty on US equipment investment. In similar studies, Driver and Moreton (1991) and Price (1995) also found negative impact of uncertainty/instability on UK manufacturing investment. Galeotti and Schiantarelli (1994), based on a panel of non financial US firms, found that firms’ investment decisions are affected as much by optimist/pessimist mood of market participants as by fundamentals. Accordingly, the signals sent by the stock market are important even when fluctuations are caused by irrational investor behavior.

In the case of developing countries, Aizenman and Marion (1996), Hausmann and Gavin (1995), and Serven (1998) found a negative relationship between private investment and several economic instability measures including uncertainty in real GDP growth, real exchange rate, relative prices of

capital goods, and inflation. Furthermore, several papers have uncovered a both statistically and economically significant negative relationship between real exchange rate volatility and growth and investment performances of developing countries (Edwards, 1989; Ismihan, Kivilcimli, and Tansel, 2001).

Similarly, in a group of developed and developing countries, Pindyck and Solimano (1993) found a negative effect of real exchange rate volatility on investment in the short run. Likewise, Ramey and Ramey (1995) reported a significant negative relationship between real GDP volatility and the average growth rate of GDP. In a similar study, Hnatkoska and Loayza (2003) reported that output volatility, even when controlled for any possible endogeneity, has a significantly negative effect on growth in a sample of 79 countries between 1960-2000. Moguillansky (2002), on the other hand, based on a panel of 16 LA countries over the period of 1970-2000, found that volatility of short-term capital flows has a statistically and economically significant negative effect on investment.

In contrast, Kose, Prasad, and Terrones (2003) for 76 countries between 1960-1999 reported that increasing financial openness is associated with increasing relative volatility of consumption up to a threshold level, after which increasing openness is found to be decreasing volatility. Similarly, Easterly, Islam and Stiglitz (2001) found no significant effect of either financial openness or volatility of capital flows on output volatility in a sample of 74 countries between 1960 and 1997. Lastly, Buch, Dopke and Pierdzioch (2002) for 25 OECD countries found that there exists no consistent empirical relationship between financial openness and volatility of output.

Nevertheless, despite a few counter studies, the majority of existing empirical research suggests that external market developments and international capital flows have a direct effect on domestic macro variables including investment and growth performances.

3. International Capital Flows and Socio-Political Risk: The Endogeneity Problem

What is common in the majority of the existing research is that it identifies a linear relationship from political risk to international and/or domestic investment decisions and/or to economic growth. As a

result, most of the empirical evidence on the relationship between political instability and international/domestic investment decisions, and growth has been obtained without tackling the parameter endogeneity problem between these variables.

The joint endogeneity of some regressors and the dependent variable causes a misspecification problem in econometric analysis. Shortly, this implies that political risk variables (as independent variable on the right hand side of the equation) are correlated with the residuals and thereby make the standard OLS estimators biased and inconsistent.⁵

Having established a direct relationship from political risk to private investment (including international capital flows) and growth, some interesting results emerge when looking at the effects of changes in economic variables on socio-political instability. In this respect, the relationship between economic growth and poverty rate has long been an attractive topic in the field. In a recent paper, Adams (2004) found that growth elasticity of poverty is -2.79 and statistically significant when growth is measured by changes in mean survey income. Similarly, Hausmann and Gavin (1996) in a sample of 56 countries reported that GDP growth volatility has a significantly negative effect on income inequality.

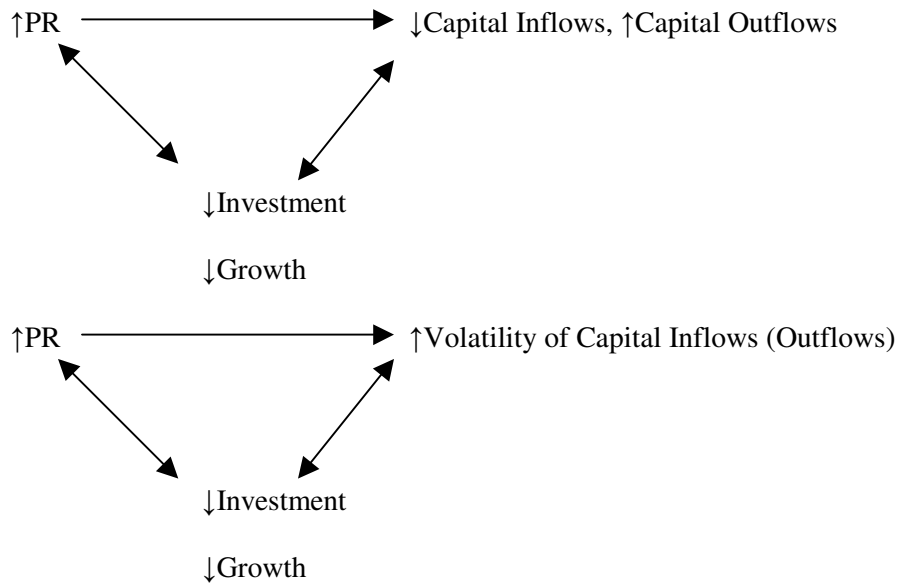
On the other hand, Ehrlich (1973) and Fleisher (1966) in their analysis of the determinants of crime found that income inequality significantly increases crime rates. Likewise, as reviewed by Freeman (1994), most of the research in the field finds a positive relationship between unemployment and crime. Fajnzylber, Lederman and Loayza (2000) based on a cross-country analysis established a statistically and economically significant negative relationship between GDP growth and violent crime rates. They also found a positive effect of income inequality on the homicide and robbery rates. Soares (1999) also found a significant crime-increasing effect of income inequality. In this respect, Harms (2002) presents an analytical model that explains the negative correlation between poverty and political risk.

On the other hand, the findings of Taylor and Vos (2000) who tried to distinguish the effects of trade and financial liberalization on income distribution provide further support for an endogenous relationship between social and macro-economic variables by linking financial opening with “greater volatility, impeding sustained improvements in equity and poverty reduction (p.3).” Along similar lines,

Behrman, Birdsall and Szekely (2001) emphasized the effects of financial liberalization on income distribution. According to their findings the financial liberalization seems to have played a major role in increasing inequity and poverty in LA countries during the 80s and 90s. Furthermore, in an analysis of the effects of economic reform programs of the 1980s and 90s on income inequality in 17 Latin American countries (representing more than 90 percent of the region's population), Birdsall and Szekely (2003) showed that financial sector liberalization significantly increased income inequality. They also found a significantly positive impact of macroeconomic volatility on inequality (i.e. worsening inequality).

In addition, Fallon and Lucas (2002) pointed out the negative effects of the financial crises of the 1990s on labor markets such as cuts in real consumption wages and rising unemployment levels. Likewise, Halac and Schmukler (2003) in the case studies of financial crisis episodes in Chile, Mexico, Ecuador, Argentina and Uruguay found a significantly negative impact of financial crises on income distribution through financial transfers.⁶

In short, the existing research suggests that increasing political risk: discourages foreign capital inflows while encouraging capital outflows by (i.e. capital flight), reduces private fixed investment and slows down economic growth. On the other hand, reversals of capital inflows hurts investment and economic growth, which then leads to increasing unemployment, real wage contractions and increasing income inequality and poverty. Increasing unemployment, income inequality and falling real wages then increases socio-political unrest in the form of regime instability, crime rates, threats to private property and increasing pressure on the political system for redistributive purposes. In this framework, the triggering factor may come from changes in the political risk factors as much as from economic factors. Any push variable (such as an external shock) or non-political pull variable (such as public finance problems or macro instability etc.) may reverse the direction capital inflows that can trigger a chain reaction as described above. Consequently, the relationship among international capital flows, private investment and growth, and political risk can be summarized as follows:



In this picture, both the direction and the volatility of international capital flows affect the political risk through domestic investment and growth variables.

In order to see the size of the shock caused by external capital inflows in AMT, gross capital inflows (that is the summation of the absolute value of monthly net capital inflows by nonresidents) can be compared with the net inflows realized using the US treasury data (where monthly transactions between the US and corresponding countries are recorded). As can be seen from Table 1 below, between 1984 and 2003, the net inflows to gross inflows ratio was 0.36 per cent for Argentina, 2.7 per cent for Mexico and 4 per cent for Turkey. When looking at the breakdown of the flows throughout this period, not surprisingly the majority of inflows took place following the capital account liberalization in the 1990s. Between 1990 and 2003, gross inflows increased 50 times in Argentina, 21 times in Mexico and 42 times in Turkey compared to the 1984-1989 period. On the other hand the increase in net inflows remained much smaller. While gross inflows stand around 592, 553 and 188 billion US dollars in AMT, the net inflows remained at US\$5, \$27 and 7\$ billion respectively between 1990 and 2003. Figure 1 highlights the discrepancy between the gross and net inflows by looking at the ratio between net capital inflows and gross inflows in AMT using the Hodrick-Prescott Filter (HP), which is a method, used to obtain a smooth estimate of the long-term trend component of the series.⁷ Accordingly, there is a sudden

jump in the volatility of capital inflows to AMT following the capital account liberalization of 1989 as can be seen from the increase in gross inflows vis-à-vis net inflows.

<Table 1 Here>

<Figure 1 Here>

Nevertheless, despite the empirical evidence above relating economic variables with socio-political risk, only a few researchers have taken their endogenous nature into account by applying appropriate econometric estimation techniques. Alesina and Perotti (1996) allow for endogeneity between socio-political instability and domestic investment in physical capital in a simultaneous equation setting in a cross-section of 71 countries for the period of 1960-1985 and find results supporting the above view that income inequality increases socio-political instability, which then reduces investment. Likewise, Alesina et al. (1996) in a simultaneous equation framework endogenizing political instability and economic growth and using a sample of 113 countries for the period of 1950-1982 confirm the above findings by showing that political instability reduces growth at a statistically significant level. Yet, they fail to find the same effect from growth to political instability. In contrast, Limongi and Przeworski (1994) did not find any significant impact of either political instability on growth or vice versa in terms of the impact of domestic economic conditions on regime change in the case of ten South American Countries between 1946 and 1988. Similarly, Londregan et al. (1990) endogenized the growth and political instability in their regression model without finding any evidence of reduced growth as a result of increased political instability (however their proxy for political uncertainty is restricted to military coups).

On the other hand, Campos and Nugent (2002a) obtain results that to some extent challenge the traditional view. Using an aggregate index of socio-political instability (SPI) for a sample of 98 countries over a period of 1960-1995, they run two separate models to test the relationship between political instability and rate of growth: one with standard OLS regression where the dependent variable is rate of growth and independent variable is political instability together with some economic control variables; and another one after recognizing the endogeneity between these variables. Standard OLS regressions

supports the findings of other papers on this subject; a negative relation between SPI and growth. However, when they repeat the same exercise with Granger causality tests they find that SPI does not Granger cause growth for the case of whole sample. In the case of Middle East and North African countries however, they found a positive relation. Campos and Nugent (2002b) repeat the same analysis to investigate the relationship of SPI with investment. They report that while socio-political uncertainty is contemporaneously associated with lower investment, it leads to greater investment in the future. On the other hand they found a contemporaneous negative effect of socio-political risk on growth at a statistically significant level even when controlled for the positive impact of risk through investment on growth.

Fielding (2001) and Asteriou and Price (2001) apply Granger causality tests in country specific studies (Israel and UK respectively) and point out more consistent results with the traditional view. In Fielding (2003) socio-political instability negatively Granger causes investment in nonresidential construction as well as equipment and machinery investment in Israel. In Asteriou and Price (2001), political uncertainty in UK negatively Granger causes investment.

3.1 The Hypothesis

Following the above discussion, the current paper suggests that there is an endogenously determined relationship between political risk and the volatility of short-term capital inflows in AMT. The main contribution of the paper is threefolds: First, the volatility of short-term capital inflows is endogenized with the analysis of determinants of political risk. Second, a country specific time-series approach is adopted unlike others in this field. This way the commonalities as well as divergences among these three countries are captured without losing country specifics. Third, monthly time series data on capital flows and country risk are employed that enables the exploration of short term as well as long-term dynamics. Despite the fact that there is a unanimous consensus in the literature over the speed with which short term capital flows across borders (see Table 1 and Figure 1), the existing research continues to use aggregated annual or in many cases averaged cross section data. This way, the current analysis will be able to uncover the immediate impact of volatility of capital inflows on socio-political risk ratings.

We expect the volatility of short-term capital inflows to increase socio-political risk, just as increasing socio-political risk increases the volatility of such flows. The relationship is tested by the following general unrestricted model (GUM) in a simultaneous equation system using three-stage least squares estimation method (3SLS). The statistical properties of estimated variables in 3SLS and 2SLS (two-stage least squares) are both asymptotically unbiased and consistent but 3SLS estimates are more efficient (Judge et al., 1992).

However, as argued by Krolzig and Hendry (2001, p.840), the economic theory occupies a central role in the modeling process in “prior specification and prior simplification”. Prior specification refers to the inclusion of potentially relevant variables while prior simplification refers to the exclusion of irrelevant ones. Yet, the existing literature does not provide a well-determined list of variables to be included in such a model for different countries at different times. Therefore the modeling started with a GUM where several related explanatory variables are included in correlation with the theoretical discussions above while deleting those which turned out to be insignificant in the regressions.⁸ The specification of GUM is presented in equations (1) and (2) below⁹ (data sources and measurement issues are given in the Appendix).

The analysis started with a dynamic GUM that generalized equations (1) and (2) with 12 lags and then proceeded by eliminating the insignificant variables step by step while applying diagnostic tests to check validity of the reductions. Following this process, the final specification of the equations has been selected.¹⁰

$$\begin{aligned} SCFV_t &= \alpha_0 + \alpha_1 SPR_t + \alpha_2 V_t + \varepsilon_t \\ SPR_t &= \beta_0 + \beta_1 SCFV_t + \beta_3 Z_t + \tau_t \end{aligned} \tag{1}$$

SCFV is volatility of short-term capital inflows, SPR is socio-political risk index (a higher value indicates lower risk), and V and Z are vectors of control variables.

SPR is expected to have a negative sign showing that decreasing SPR (i.e. increasing risk) increases the volatility of short-term capital inflows. The idea comes from the fact that as political risk level increases, international investors' sensitivity to small bad news may increase as well. On the other

hand, SCFV variable is expected to have a negative coefficient as well showing that increasing volatility increases socio-political risk (hence reduce SPR).¹¹

V includes the following: export import ratio (EXIM), inflation uncertainty (INFVG)¹², US 3-month treasury bill rate (USTB), volatility of US treasury bill rate (USTBV) measured as quarterly standard deviation of monthly USTB, Mexican SCFV (MXSCFV), interest payments from central budget to total tax revenues ratio (INTTX), total external public debt to GDP ratio (EDG), consolidated budget balance as a share of GDP (CBB), foreign exchange reserves to imports ratio (RIM), and a dummy variable for capital account liberalization (DCAP). EDG and INTTX are expected to have a positive coefficient suggesting that increasing interest and overall external debt burden sends negative signals regarding the public finances of the country and makes foreign investors more sensitive to changes in the news. Also, as the debt burden increases so does the continuous need for its rollover, which will probably be financed from short-term sources. This will naturally increase the turnover of inflows in and out of the country. For similar reasons CBB is also expected to have a negative coefficient (-CBB represents budget deficit). The sign on USTB and USTBV is indeterminate. If increasing US interest rates reflect a global increase in risk, then this may increase the political risk in AMT by triggering negative expectations for the future prospects in AMT, hence may increase the volatility of capital inflows. USTBV

Z included the following: Cost of Living Index (CLI), Minimum Wage Index (MVI) Public Investment Expenditures as a share of total expenditures (GI), inflation rate (Inf), Real GDP growth (RGDPG) or Industrial Production Growth (IPG), Mexican political risk index (MXICRP, for the regressions of Argentina and Turkey), US 3-month treasury bill rate (USTB), and dummy variables for capital account liberalization (DCAP), and for other episodes that might have a one-time or permanent impact on the political risk rating.

CLI is expected to have a negative sign suggesting that increasing living cost (unless matched by equal increases in nominal wages) increase poverty and social instability. MVI is expected to have a positive coefficient suggesting that decreasing real wages increases social pressures in society (i.e. decrease SPR). GI is expected to have a positive coefficient meaning higher government investment

(through providing more employment and other social benefits) reduces social tensions. DCAP is expected to have a positive coefficient in case political risk perceptions of raters were affected by the economic liberalization in these countries. RGDP and IPG are expected to have positive coefficients confirming previous research on political instability reducing effects of economic growth. USTB is expected to have a negative coefficient in case increasing US interest rates reflect a global increase in risk levels, or in case raters will take into account medium and long term impacts of higher US interest rates on these countries in terms of borrowing constraints, cost of repayment of existing debt, and other growth retarding impacts of such a change. MXICRP is employed as a variable reflecting contagion effect from other emerging markets and is expected to have a positive coefficient reflecting co-movement in risk ratings. Compared to Argentina and Turkey, Mexico is much more internationalized and the size of capital it attracted is much larger than both. Therefore any change in the global socio-political risk perceptions, if they have any impact, should be captured from this variable. In other words, if the covariance between Turkish and Argentine political risk ratings and the ratings in major capital attracting countries is not zero then this variable should capture that effect. Finally, DCAP is expected to have a positive impact on risk ratings reflecting positive expectations for future prospect in these markets.

3.3.2 Data Sources and Measurement Issues

In order to test the above hypothesis, quarterly volatility of short term capital inflows (by nonresidents) as well as quarterly measure of socio-political risk for AMT are needed. The reasons for using such a high frequency data are two-folds: a) Given the high velocity with which short term capital travels in and out of countries, annual or even quarterly flows measures do not capture the real magnitudes of these flows (see Table 1 and Figure 1). As a result, when trying to capture the volatility of the flows using these data, there will be a significant bias in the calculations, b) In order to capture the immediate impact of the volatility of these flows on socio-political risk perceptions and expectations in these markets.

However, the available data from domestic sources for AMT are not uniform and cover different time periods. For Argentina and Mexico, for example, the short-term capital flows data from its balance of payments statistics are quarterly and there are no monthly data available. Given that quarterly data would allow us to construct only an annual volatility variable, which apart from short time dimension problems, would suffer from the same criticism raised above, the US Treasury International Capital Reporting System that provides monthly cross border investment transactions of short term and long term securities vis-à-vis the US and foreign countries is used.¹³ The data coverage goes as far as 1977 and includes all countries (based on nationality) that are reported to have transactions with the US. Given the close proximity of Argentine and Mexican markets to the US the data series are assumed to be close estimates of the total capital inflows to these countries. Also, given the locomotive effect of capital flows from the US, the volatility of these flows will not deviate significantly from the total flows. In addition, in the case of Turkey monthly balance of payments data, which is available from the Central Bank of Republic of Turkey starting from 1992, is also employed. Given that Turkey is not in close proximity to the US market as Argentina and Mexico, possible biases caused by the way US treasury data are recorded will be avoided this way.¹⁴ Both results are reported in the empirical section. As the measure of capital inflows, net monthly inflows are used. However, gross inflows (in absolute values) are also calculated to capture the total size of capital moving in and out of the economy by the nonresidents (Table 1 and Figure 1).

In order to clarify the above point, net quarterly short-term capital inflows figures from the IFS statistics are compared with the US Treasury data. The simple correlation between two datasets is 0.54 for Argentina, 0.52 for Mexico and 0.10 for Turkey. The results suggest that the use data for Argentina and Mexico might be a good substitute for the national BOP data, while for Turkey the precaution to repeat the analysis with the national data is justified.

As the volatility measure, the quarterly standard deviations of net monthly inflows are used (in addition, a gross volatility index is also calculated based on gross inflows that is measured as the sum of the absolute values of inflows)¹⁵. The net inflows variable is equal to Net sale of long-term [Argentina,

Mexican, Turkish] stock and bonds¹⁶ plus changes in the sum of total US banks' claims on foreign public borrowers and unaffiliated foreigners and on own offices.¹⁷

The socio-political risk data are from International Country Risk Guide Composite Political Risk Index (ICRGP), which is a qualitative risk index based on expert analysis using the following components: Economic Expectations, Economic Planning Failures, Political Leadership, External Conflict, Corruption, Military in Politics, Organized Religion in Politics, Law and Order Tradition, Racial and Nationality Tensions, Political Terrorism, Civil War, Political Party Development, Quality of the Bureaucracy.¹⁸

Apart from its reliability and common usage in the current economic analysis (e.g. Diamonte, Live, and Stevens, 1996, Bilson, Brailsford and Hooper, 2002; Alfaro, Kalemli-Ozcan and Volosovych, 2004), ICRGP has an important advantage over other methods of measuring socio-political risk, which is that of being available monthly starting from 1984. As a result, quarterly political risk and volatility data could be employed between 1984 and 2003.¹⁹

On the other hand, there are certain disadvantages of working with such high frequency data as well as with an expert calculated measure of socio political risk. The most obvious one is the fact that it might be difficult if not impossible to catch the effects of economic growth variables on socio-political risk in a high frequency data. Secondly, the risk ratings might be biased in the sense that they may reflect the raters' risk perceptions rather than the factual socio-political instability in a country. In this respect the ratings might be backward as well as forward looking (i.e. reflecting the raters' past experiences as well as future expectations based on the information available at time t). However, given that the current analysis is trying to capture the contemporaneous impact of the volatility of international capital inflows on socio-political risk, the second difficulty is indeed an advantage for us. To the extent that the ratings reflect current risks as well as expectations for future, the impact of the volatility of these flows on the risk perceptions for future can be captured as well. The sudden jump in the political risk ratings in the aftermath of the capital account liberalization of 1989 in all three countries provides some support to this

assumption by showing that the raters reflect the predicted effects of economic developments on socio-political risk levels in their political risk measurements.²⁰

4. Empirical Results

4.1 Political Risk and Volatility of Short term Capital Flows: A Granger Causality Analysis

In this section Granger causality tests are carried out between the two main variables, namely the volatility of short-term capital inflows and socio-political risk. Given that Granger test requires stationarity of both variables, first difference transformation is applied when needed. Also, due to sensitivity of the test to different lag specifications, the following table gives the test results up to four lags.

As can be seen from Table 2, there appears to be a dynamic relationship between political risk and volatility of short-term capital inflows in AMT. In Argentina and Mexico, a significant Granger causality is discovered from volatility of capital inflows to political risk. In Turkey, the relationship seems to be holding from political risk to capital inflows (with the BOP data) rather than the other way around. Although the Granger test results failed to show a contemporaneous relationship, the results support the hypothesis regarding the effect of volatility on socio-political risk. However, the results should be taken with caution given the apparent limitations of the test and that Granger causality does not necessarily prove a cause and effect relationship. In the next section we report the regression results using the specification discussed above.

<Table 2 here>

3.4.2 Regression Results

<Table 3 and 4 here>

Both the Granger causality test (Table 2) and the regression results (Table 3 and 4) suggest the presence of a dynamic and contemporaneous relationship between the volatility of short-term capital inflows and political risk despite changing levels of significance. In the case of Argentina, while a statistically significant negative effect of the volatility variable on political risk is discovered (i.e. decreasing ICRGP hence increasing political risk) no significant effect of the risk variable on the

volatility of SCF is found. On the other hand, in the case of Mexico a statistically significant contemporaneous effect is found between these variables. However, unlike the other two cases the sign on the political risk variable in the volatility equation appeared to be positive suggesting that decreasing risk increases the volatility of such flows. The explanation may lie in the special relationship between Mexico and the US. One may argue that decreasing risk increases the volume as well as velocity of capital inflows to Mexico from the US. As a result, apart from crisis times a positive relation might be found between decreasing risk and increasing volatility. Figure 1 provides some support to this argument by showing that the overall trend in the volatility of capital inflows to Mexico (measured as HP filtered net inflows/gross inflows ratio) is different than the one in Argentina and Turkey. Unlike the other two, net inflows/gross inflows ratio stayed stable especially in the second half of the 1990s, which may reflect certain differences in investors' reactions to AMT under changing levels of risk. This may also result from the investors' attitude towards developing countries. While decreasing risk may play a stabilizing role in the developed country markets, it may cause the opposite in the developing world. However, given that the sign is negative though statistically insignificant in Argentina prevents further conclusions based on this result. In the case of Turkey, although having the expected signs, no significant relationship is found between the variables when using the US treasury data. However, when using the CBRT data, a significant effect of the volatility variable on political risk is discovered.

When looking at the other variables of interest, in the volatility equation, the volatility of US interest rates has a negative impact on the volatility of capital inflows to Mexico while a positive one to Argentina (though with a statistical significance only in the case of Mexico). The level of US Treasury bill interest rate, on the other hand has a negative sign in the case of Mexico and Turkey. One explanation might be that increasing US interest rates reduce the incentive for US investors to go offshore and thereby help reduce the volatility of inflows to other countries by decreasing the size of inflows. Another explanation might be the fact that increasing US (and global) interest rates also increase the country risk ratings of developing countries which in return discourage foreign capital inflows to these markets. In

addition, the results show a positive but statistically insignificant effect of the volatility of capital inflows to Mexico on the volatility of these flows in Argentina and Turkey.

In the political risk equation, a contagion effect from the Mexican to the Argentine and Turkish markets in the political risk ratings is uncovered. In both Argentina and Turkey, the coefficient on Mexican political risk ratings in the Political risk equation appeared with an economically significant sign though statistically significant only in the case of the latter. The inflation variable appeared with negative sign as expected. Other variables appeared with the expected signs.

5 Conclusion

Caballero and Dornbusch (2002), following 2001 crisis in Argentina wrote the following lines in the Financial Times:

...it is time to get radical. [Argentina] must temporarily surrender its sovereignty on all financial issues...give up much of its monetary, fiscal, regulatory and asset management sovereignty for an extended period, say five years , a board of experienced foreign central bankers should take control of Argentina's monetary policy...Another foreign agent would be required to verify fiscal performance”.

The title of the article was “Argentina cannot be Trusted”. A similar attitude was followed after the 1994 crisis in Mexico as well: “...all the stabilization, restructuring and reform that the country had undergone was cast aside in a single-minded attempt to cover up the problems and get strong election results” (Dornbush, Goldfajn, and Valdes, 1995, p.237). Similarly, after more than two decades of free market model, following the 2001 crisis in Turkey, it was again the domestic *policy failures*, which brought an end to the ongoing IMF designed stabilization program (Deppler, 2001).

In contrast to such views as above that put all the blame on the crisis-ridden countries, the current paper explored the effects of uncontrolled financial liberalization programs on socio-political instability in AMT. Overall, the results suggest the presence of an endogenously determined relationship between the volatility of international capital inflows and political risk determinants in AMT.

Unlike the previous research, the current article suggests that domestic socio-political factors cannot be isolated from the fluctuations taking place in the economic arena. In this respect, the focus of attention has been on the socio-political impacts of volatility of capital inflows. The results also put the previous research into question regarding their use of political variables as purely exogenous from economic variables. Likewise, the legitimacy of the arguments explaining investor cautiousness vis-à-vis political developments in the developing countries with purely domestic factors also becomes questionable.

The main objective of this research was to analyze short-term effects of the volatility of capital inflows on socio-political risk expectations, which is why high frequency short-term risk and volatility data are employed. Given that the risk variable used is calculated on a monthly basis, it had the advantage of analyzing the immediate effect of the volatility of capital flows on socio-political risk ratings in these markets. Overall, the results call for a reconsideration of the existing research on the relationship between financial liberalization programs and socio-political developments in the developing countries without ignoring a possible contemporaneous relationship between the variables.

On the other hand the empirical results suggest that the political risk ratings are not measured based genuinely on domestic variables unless the raters take into account future effects of any change in the international markets on the domestic economy and hence on socio-political factors.

In this respect, one limitation of the current analysis is that the expected medium and long term impact of the volatility of capital inflows is assumed to be reflected implicitly in the socio-political risk assessments of the country experts as measured by ICRGP. Although the volatility of capital flows is not expected to immediately show its effects on the socio-political variables in monthly (quarterly) data, it is expected to affect the risk expectations/perceptions of the risk raters. In this respect, it is assumed that the raters take into account the (expected) future as well as the past and current impacts of the volatility variable in their risk assessments. For future research, a cross section and/or panel data analysis using directly observed socio-political risk variables might help confirm the robustness of this assumption about the behavior of the raters.

Endnotes

¹ However, apart from the problem of endogeneity, their analysis suffers from measurement error. Specifically, their measure of capital flows is based on the net value, which may not be the best way of measuring the volatility of capital flows given that capital flows by nonresidents and residents may go in different directions depending on the time period covered (Gabriele, Boratav and Parikh, 2000, p.1037).

² Brunetti (1997) and Carmignani (2003) provide a thorough survey of existing research, on the uses of socio-political variables in economic analysis. Both papers also offer a comprehensive survey of the respective measures of socio-political variables used in the previous research.

³ Ros (2003, p.264-302) provides a thorough analysis of the existing research on the relationship between income distribution and economic growth.

⁴ Alesina and Tabellini (1989) provides a theoretical model explaining capital flight as a function of political risk.

⁵ The issue of parameter endogeneity is discussed in detail in Carmignani (2003) where it is pointed out that econometric models with political variables suffer from several specification and estimation errors. The problem is more severe for those who employ political risk measures of institutional risk rating firms without considering possible endogeneity between the risk ratings and market volatility. (for a discussion of procyclical risk ratings see e.g. Kaminsky and Schmukler, 2002).

⁶ For a review of existing literature on financial crisis-income distribution relationship, see e.g. Halac and Schmukler (2003).

⁷ The Hodrick-Prescott filter is a linear filter that calculates the smoothed series of y and x by minimizing the variance of y around x , subject to a penalty that limits the second difference of x . The penalty parameter that controls the smoothness of the series. is used as equal 1,600.

⁸ During this process, the existing specification is simplified only when no diagnostic test rejects its null. This method of specification from a general unrestricted model to a reduced form is supported by the findings of several research. See for instance e.g. Krolzig and Hendry, 2001.

⁹ In the final specification both equations (1) and (2) have been tested for the order and rank condition of identification.

¹⁰ Augmented Dickey-Fulley Unit Root Test is applied to test for the stationarity assumption of the variables. Where the results indicated the presence of single unit root process the first difference of the related variable is taken. The residuals from the 3SLS estimation have been tested for serial correlation by Breusch and Godfrey LM test and Ljung-Box Q-statistics. The presence of autoregressive conditional heteroscedasticity is also tested by Engle-LM test. Normality assumption is tested by Jarque-Bera test statistics. According to the findings of the tests the residuals did not violate any of the classical assumptions. In addition, 3SLS is sensitive to misspecification error which when exists spreads to the full system of equations. Therefore, this estimation method requires a misspecification check. We applied Hausman Specification Test to check for this possibility (Hausman, 1978). Accordingly: Ho: All equations properly specified→3SLS efficient, Ha: At least one equation misspecified→2SLS is consistent but not efficient. We reported the test statistics at the end of regression tables.

¹¹ However, it is also possible to have a nonlinear relationship between these variables. Accordingly, decreasing political risk may increase volatility of capital inflows if it is accompanied by increasing capital inflows to these countries. The same can be said for the effects of volatility of capital inflows on socio-political risk. If increasing volatility is a sign of increasing capital market integration and the following increase in capital inflows, then increasing volatility may decrease the socio-political risk up to a threshold level after which further increases may increase socio-political risk by causing disruptions to the market activities.

¹² Measured from a GARCH (1,1) model.

¹³ For an analysis of the data as well as information on the US system for measuring cross-border securities investment see e.g. Grier, Lee and Warnock (2001). Also for information on data coverage and measurement issues of the data series see the treasury web site at <http://www.ustreas.gov/tic/index.html>.

¹⁴ For a discussion of such limitations see e.g. Grier, Lee and Warnock, 2002, p.640.

¹⁵ Two other alternatives to measure the volatility of capital inflows are the coefficient of variation and normalization via GDP weights. While both methods are widely used in cross-country analysis, they don't affect the results in single country regressions. Also, an important drawback of the second method is that it is biased upwards during and after any economic turmoil where GDP contracts downwards.

¹⁶ From Foreign Purchases and Sales of Long-Term Domestic and Foreign Securities by Type tables of the treasury, Data column titles correspond to column titles in Treasury Bulletin Table CM-V-4, excluding CM-V-4 columns (1) and (8).

¹⁷ There is a change in the data definitions following 2003:2, for a detailed description of the changes refer to Treasury International Capital Reporting System.

¹⁸ Other measures for degree of political instability and risk in the literature include different, and sometimes subjective, measures of political unrest in society such as total number of strikes, demonstrations, riots, revolutions, the frequency of change in political leadership, frequency of change in the head of government or the governing group and military coups, assassinations, existence of war, ethnic divisions and ratio of different language groups and minorities to the dominant group, regional and personal income inequality, etc. Another common way of measuring political instability is through aggregating different individual instability indicators into a general index. (e.g. Alesina et al., 1996, Barro, 1991; Fosu, 2001; Gupta, Madhayan and Blee, 1998).

¹⁹ As pointed out by Bilson, Brailsford and Hooper (2002, p.14) and Howell and Chaddick (1994) Political Risk Services indexes are more reliable and perform better in risk prediction than other major political risk ratings.

²⁰ For example, the political risk index between January 1991 and January 1992 has jumped up 74 per cent in Turkey possibly reflecting the expected effects of financial reform programs.

APPENDIX

Data Definitions and Sources

1.1 Common Definitions

In all three countries, real short-term capital inflows data are deflated using US Producer Price Index.

CBB: Consolidated budget balance as a percentage of GDP ((+) means surplus).

EDG: External debt to GDP ratio.

ICRGP: International Country Risk Guide Political risk index transformed. ICRGP scores vary within the range 0-100 and therefore conflict with the normality assumption underlying OLS. However, the scores may be interpreted as probabilities as suggested by Feder and Ross (1982), which then allows a logistic transformation on the risk scores such that $ICRGPP: \ln((ICRGP/100)/(1-(ICRGP/100)))$.

INF: Inflation rate using Consumer Prices for Argentina and Producer Prices for Mexico and Turkey.

INF: Wholesale Price Index (WPI) inflation.

INFVG: Inflation volatility measured by GARCH (1,1) method.

INTX: Public sector interest expenditures as a share of total tax revenues.

INVTE: Government investment expenditures as a share of total expenditures.

IPG: Seasonally adjusted industrial production growth.

LSDCIN: Natural log of real capital inflows.

MVI: Real minimum wage index.

MXICRGP: Mexican ICRGP.

MXSDCIN: Standard deviation of real capital inflows to Mexico.

RGDPG: Seasonally adjusted real GDP growth.

RIM: Reserves to imports ratio.

SDCIN: Standard deviation of real net short-term capital inflows (by non-residents).

USTBSD: Standard deviation of 3-month US Treasury bill rate.

1.2 Argentina:

The data are from IFS and Ministry of Economy of Argentina.

CBB: Consolidated budget deficit as a percentage of GDP, (+) means surplus.

D97: Dummy variable for the initial jump in capital inflows to Argentina following the Standard & Poor's announcement of increasing credit rating 1997:1.

D90 is a dummy variable for the initial jump in the short term capital inflows following the move making the Argentine currency fully convertible in March 1990 and takes the value of 1 for 1990:2.

D01: Dummy variable for the 2001 crisis and takes a value of 1 for 2001:3-2002:2.

INF: Consumer price inflation calculated as annualized log difference with the previous period.

INFVG: Quarterly inflation volatility measured by GARCH (1,1) method and is calculated for 1978:1-2003:12 using CPI.

RGDPG: Seasonally adjusted real GDP growth deflated using consumer price index and measured as natural log difference with the same period of previous year.

1.3 Mexico:

The data are from IFS and Central Bank of Mexico.

CBB: Consolidated budget balance as a percentage of GDP.

DCAP: Dummy variable for capital account liberalization and takes 1 after 1989:3.

DCRIS: Dummy variable for the effects of economic crises in Asia in 1997 in Argentina in 2001 and equal to 1 for 1997:4-1998:1, 2001:3-4.

EDGDP: Total external public debt as a percentage of GDP.

INF: Producer Price Inflation calculated as annualized log difference with the previous period.

INFVG: Quarterly inflation volatility measured by GARCH (1,1) method and is calculated for 1981:1-2003:12 using PPI.

INVTE: Government investment expenditures as a share of GDP.

MVI: Real minimum wage index based on 1994=100 series.

RGDPG: Seasonally adjusted real GDP growth deflated using Producer Price Index and is measured as natural log difference with respect to previous period.

1.4 Turkey:

The data are from IFS and Central Bank of Republic of Turkey.

D91: Dummy variable equal to 1 for 1991:2, and 1992:1 (the dates witnessed the highest upward jump in the political risk rating of Turkey, the first one is thought to be a late response to the capital account liberalization, and

the second corresponds to the announcement of new economic reform program as well as starting of the trading of treasury bills, government securities and private sector bonds in the stock market.

INF: Wholesale Price Inflation calculated as annualized log difference with the previous period.

INFVG: Quarterly inflation volatility measured by GARCH (1,1) method and is calculated for 1978:1-2003:12 using WPI inflation.

INTTX: Interest expenditures from the consolidated budget as a share of total tax revenues.

INPG: Annualized industrial production growth calculated as log differences from Industrial Production Index using 2000=100 series.

LSDRTL: Natural log of the standard deviation of real short-term capital inflows (measured as TL definition below) for Turkey using the CBRT data.

TL: Total Liabilities from Balance of Payments data calculated as the sum of equity securities liabilities, debt securities liabilities, other investment liabilities-loans-banks and other sectors, other investment currency deposits-banks and other investment other liabilities from monthly balance of payments statistics

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TABLE 1: GROSS AND NET CAPITAL INFLOWS

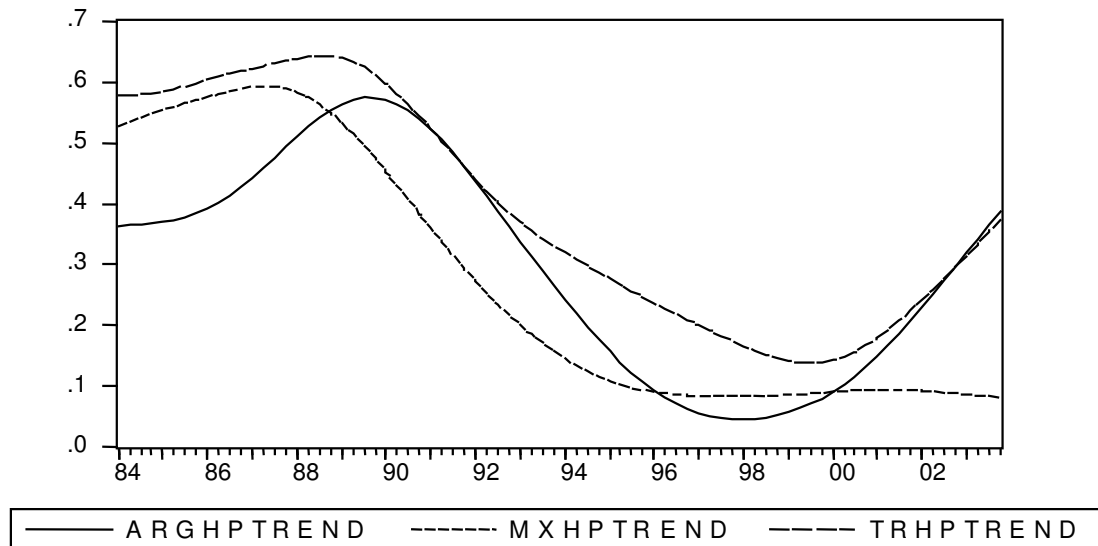
	Millions of US Dollars in Current Prices							
	ARG		MX		TR		TR*	
SUMS	Gross	Net	Gross	Net	Gross	Net	Gross	Net
1984-1989	11685	-2803	26497	-11921	4511	295		
1984-2003	603528	2192	579636	15380	192990	7678		
1990-2003	591843	4995	553139	27301	188479	7383	198895	48449

SOURCE: The US Treasury International Capital Reporting System.

NOTE: Gross stands for gross short-term capital inflows, which are the sum of the absolute value of monthly net capital inflows. Net stands for net short-term capital inflows, which are the sum of the monthly net capital inflows.

*The data are for the 1992-2003 period based on Central Bank of Republic of Turkey (CBRT) database.

FIGURE 1: HP FILTERED NET CAPITAL INFLOWS/GROSS INFLOWS RATIO BETWEEN 1984-2003



SOURCE: The US Treasury International Capital Reporting System.

NOTE: ARGHPTREND, MXHPTREND and TRHPTREND stand for HP Trend of net short-term capital inflows/gross short term capital inflows ratio for Argentina, Mexico and Turkey respectively. The ratio is calculated using quarterly data and is based on the gross inflows that are the quarterly sum of the absolute value of monthly net capital inflows, and net inflows that are the quarterly sum of the monthly net capital inflows. For simplicity, net inflows are in absolute value. A decrease in this ratio reflects increasing volatility.

TABLE 2: GRANGER CAUSALITY TEST RESULTS

Null Hypothesis:	F-Statistics and Lags:			
Argentina: 1984:1-2003:4	1	2	3	4
SDCIN does not Granger Cause DICRGP	0.1	2.8***	2.4***	1.7
DICRGP does not Granger Cause SDCIN	1.2	0.6	0.5	0.4
Mexico: 1984:1-2003:4				
SDCIN does not Granger Cause ICRGP	5.2**	2.6***	2.0	1.8
ICRGP does not Granger Cause SDCIN	0.1	1.0	0.9	1.4
Turkey: 1984:1-2003:4				
DSDCIN does not Granger Cause DICRGP	0.2	0.6	1.2	0.8
DICRGP does not Granger Cause DSDCIN	0.2	1.4	2.8**	2.3***
Turkey: 1992:2003:4				
DSDTL does not Granger Cause DICRGP	0.007	0.2	0.2	0.3
DICRGP does not Granger Cause DSDTL	4.6**	2.2	2.4***	1.7

NOTE: (*), (**), (***) refer to significance at 1, 5 and 10 percent level respectively. D refers to first differencing due to stationarity problem. ICRGP is the International Country Risk Guide Political Risk Rating subject to a logistical transformation as described in the appendix, SDCIN is the standard deviation of real net short-term capital inflows (by non-residents). SDTL is standard deviation of real net short-term capital inflows using Turkish Central Bank data (from Total Liabilities -TL- accounts of the Capital Account of Balance of Payments statistics).

TABLE 3: REGRESSION RESULTS FOR ARGENTINA AND MEXICO

Argentina			Mexico		
Time period	1984:1-2003:4			1984:1-2003:4	
Dependent variable	d(SDCIN)	d(ICRGP)		LSDCIN	ICRGP
Independent variable	1a	1b		1a	1b
d(ICRGP)	-14.9 (437.8)		ICRGP	2.0*** (1.02)	
d(SDCIN)		-0.00004** (0.00002)	LSDCIN		-0.08*** (0.05)
C	-47.4*** (27.2)	0.016*** (0.01)	C	2.3 (1.9)	0.8** (0.4)
d(USTBSD)	1.6 (173.4)		d(USTBSD(-3))	-1.1 (0.4)*	
d(CBB(-1))	-2619.9 (3419.2)		D(CBB)	-6.3 (8.3)	
INFVG(-2)	0.0004* (0.00003)		d(INFVG(-2))	0.004 (0.03)	
d(RIM(-1))	-23.4 (44)		d(EDG(-2))	0.03 (0.05)	
d(MXSDCIN)	0.04 (0.06)		d(USTB(-3))	-0.4** (0.2)	
d(SDCIN(-1))	-0.1 (0.08)		LSDCIN(-1)	0.4 (0.4)	
D97	1170* (231.1)		DCRIS	-0.8** (0.4)	
D90	-3160.3* (330.3)		RGDPG		0.3 (0.2)
D(MXICRGP(-1))		0.2 (0.2)	INF(-2))		-0.04 (0.04)
d(RGDPG(-4))		0.3*** (0.2)	d(MVI(-1))		0.001 (0.002)
d(INF(-3))		-0.002* (0.001)	d(INVTE(-4))		0.2 (0.4)
d(ICRGP(-1))		-0.05 (0.3)	ICRGP(-1))		0.5*** (0.2)
D01		-0.2* (0.05)	DCAP		0.14** (0.07)
Observations:	75		Observations:	75	
Hausman	3.8 (17)		Hausman	0.5(17)	
Wald-a	5.4***		Wald-a	6.7**	
Wald-b	536.2*		Wald-b	10283.1*	

TABLE 4: REGRESSION RESULTS FOR TURKEY

Time period	1984:1-2003:4		1992:1-2003:4	
Dependent variable	d(LSDCIN)	d(ICRGP)	d(LSDDL)	d(ICRGP)
Independent variable	1a	1b	2a	2b
d(ICRGP)	-0.4 (1.2)		-0.8 (3.3)	
d(LSDCIN)		-0.002 (0.03)		
d(LSDDL)				-0.2*** (0.09)
C	-0.02 (0.1)	-0.02 (0.01)	0.04 (0.1)	0.002 (0.02)
d(LUSTB)	-2.0*** (1.1)		0.04 (0.3)	-0.02 (0.04)
d(INTTX(-2))	-0.9** (0.4)			
d(INFVG(-1))	-0.004*** (0.002)		-0.001 (0.001)	
d(LMXSDCIN(-2))	0.04 (0.1)			
d(IPG(-1))		0.3 (0.2)		0.4 (0.3)
d(INF(-1))		-0.008 (0.01)		-0.006 (0.01)
d(LUSTB(-1))		-0.2*** (0.1)		
D91		0.5* (0.06)		
d(MXICRGP)		0.2** (0.1)		0.2 (0.2)
d(INTTX(-4))			0.1 (0.2)	
d(LMXSDCIN(-3))			0.08 (0.1)	
d(USTBSD(-3))			-0.5 (0.7)	
Obs	73		47	
Hausman	0.6(13)		4.9(13)	
Wald-a	0.1		3.6	
Wald-b	108*		43.7*	

NOTE: In the estimation, all right hand side variables are used as instruments except the endogenous variables and their lagged values to ensure efficiency. 1a and 1b refer to the first and second lines of the equation (1), while 2a and 2b refer to the same equation using a different time interval for Turkey (1992:1-2003:4) d refers to first differencing due to stationarity problem, L refers to natural log of the variables, (*), (**), (***) refer to significance at 1, 5 and 10 per cent level respectively. ICRGP is the International Country Risk Guide Political risk index transformed as described in the appendix, SDCIN is the standard deviation of real net short term capital inflows, Hausman is the Hausman Specification Test (Ho: All equations properly specified→3SLS efficient) with degrees of freedom in the parenthesis (Hausman, 1978), Wald-a is Wald coefficient joint significance test for the endogenous variables, Wald-b is coefficient joint significance test for all the variables in the system. For variable definitions, see Section 1 in the Appendix.